

N° 15,757



A.D. 1893

*Date of Application, 19th Aug., 1893*

*Complete Specification Left, 1st May, 1894—Accepted, 9th June, 1894*

PROVISIONAL SPECIFICATION.

**Improved Method and Means for Preserving Food and other Substances, and for Supplying Sterilised Air to Rooms and other Enclosed Spaces.**

I, JEAN EFFRONT of 2 Rue de l'Union, Brussels in the Kingdom of Belgium, Doctor, do hereby declare the nature of this invention to be as follows:—

This invention has for its object a system of permanently preserving food or other substances which it is impossible to prevent coming in contact with the air, and it consists in a mode of procedure by allowing the air which must come in contact with such substances to be radically sterilised, the substances are consequently presumed to be contained in vessels to which the air has no access except by a part which is fitted with the sterilising apparatus.

The sterilising process, or rather the apparatus, is based on the principle that a layer of air passing over a moist surface will leave on this moist surface all the microbes and bacteria which it contains, so that, if the place where air is admitted into a suitably closed vessel is provided with an apparatus forcing such air to circulate over hygroscopic surfaces, or zig-zags, before its access into the vessel, this latter will only contain absolutely sterile air which will not in any wise alter the food or other substances which it encounters in this receptacle.

The sterilising effect may be rendered still more reliable and efficacious by completing the absorbent action of the hygroscopic surface by the exterminating action of antiseptics preventing the microbes and bacteria from co-existing with them. Thus, by mixing with the hygroscopic agent a suitable antiseptic, the bacteria and microbes captured or retained by the moisture are simultaneously exterminated by the antiseptic action, which guarantees the permanence of the sterility of the air in the vessel.

It is evident that the nature, form, dimensions, in a word, the arrangement of the sterilising apparatus or device, will vary with the size and the character of the receptacle which is to be fed with sterilised air, and that the applications are of a diversity corresponding to that of the substances which are to be maintained in the sterilising medium, and even passing beyond the range of the simple preservation of substances, the process may be applied with the same advantages to therapeutics, and serves, following this train of ideas, for sterilising experimenting rooms as well as for supplying sterilised air to a sick room hermetically closed on all sides and provided with a chimney for renewing the air which does not allow the admission of external air, and it is clear that, if the sterilising apparatus may be, for the first applications, a simple glass tube suitably arranged, for the second it must have the form of an actual passage with hygroscopic zig-zags in order to cope with the quantity of air with which the room must be fed.

It is needless to state that the dimensions and the arrangements will be the same for any sort of industrial exploitation, and where it is necessary in order to preserve the worts in large brewer's vats, for instance, to have a sterilising apparatus of a large section and provided with zig-zags, a bung arranged as a steriliser would suffice for a simple cask of beer. As the invention will have very numerous applications under the form of a preserving bung, it will now be described more in detail under such form.

In this form it is shown in longitudinal section on the accompanying drawing.

The old bung or plug is replaced by a conical screw V, which fits into the bung hole. The screw V has a small tap on its upper end, and it is surmounted by a tube T of tinned iron or other suitable material. This tube contains hygroscopic

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and antiseptic zig-zags, which are represented in this case by simple threads of asbestos and of other suitable material, soaked in a liquid which does not easily evaporate, such as glycerine, chloride of calcium, or other suitable substance, in order to maintain, so to speak, permanently the hygroscopic condition of the zig-zags and walls of the tube, and an antiseptic, such as hydrofluoric acid or some 5 other fluoride or other antiseptic, is mixed with this glycerine in order to realise the results hereinbefore mentioned.

The threads of asbestos, *etcetera*, may be also replaced by broken pumice stone, *etcetera*.

The tap R of the plug remains ordinarily closed, in order that the carbonic acid 10 shall not escape, and that the evaporation of the beer cannot take place in the plug and cause condensation in the latter, a condensation which would otherwise be collected in the bottom *r* of the head of the screw V. This tap is opened when it is desired to draw the beer, and then the air traversing the plug is sterilised 15 completely and does not in any way affect the beer with which it comes in contact in the cask, so that it is preserved precisely as if no air had come in contact with the beer.

It would be superfluous to detail the form of sterilisation apparatus or device necessary for each application, after what has been described hereinbefore, seeing that the arrangement alone would change with the modifications, all depending on 20 the same principle.

Dated this 18th day of August 1893.

WM. P. THOMPSON & Co.,  
Of 6, Lord Street, Liverpool, Agents for the Applicant.

## COMPLETE SPECIFICATION.

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Improved Method and Means for Preserving Food and other Substances, and for Supplying Sterilised Air to Rooms and other Enclosed Spaces.

I, JEAN EFFRONT of 2 Rue de l'Union, Brussels in the Kingdom of Belgium, Doctor, do hereby declare the nature of this invention and in what manner 30 the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has for its object a system of permanently preserving food or other substances which it is impossible to prevent coming in contact with the air, and it consists in a mode of procedure by allowing the air which must come in 35 contact with such substances to be radically sterilised, the substances are consequently presumed to be contained in vessels to which the air has no access except by a part which is fitted with the sterilising apparatus.

The sterilising process, or rather the apparatus, is based on the principle that a layer of air passing over a moist surface will leave on this moist surface all the 40 microbes and bacteria which it contains, so that, if the place where air is admitted into a suitably closed vessel is provided with an apparatus forcing such air to circulate over hygroscopic surfaces, or zig-zags, before its access into the vessel, this latter will only contain absolutely sterile air which will not in any wise alter 45 the food or other substances which it encounters in this receptacle.

The sterilising effect may be rendered still more reliable and efficacious by completing the absorbent action of the hygroscopic surface by the exterminating action of antiseptics preventing the microbes and bacteria from co-existing with them. Thus, by mixing with the hygroscopic agent a suitable antiseptic, the bacteria and microbes captured or retained by the moisture are simultaneously 50 exterminated by the antiseptic action, which guarantees the permanence of the sterility of the air in the vessel.



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It is evident that the nature, form, dimensions, in a word, the arrangement of the sterilising apparatus or device, will vary with the size and the character of the receptacle which is to be fed with sterilised air, and that the applications are of a diversity corresponding to that of the substances which are to be maintained in the  
 5 sterilising medium, and even passing beyond the range of the simple preservation of substances, the process may be applied with the same advantages to therapeutics, and serves, following this train of ideas, for sterilising experimenting rooms as well as for supplying sterilised air to a sick room hermetically closed on all sides and provided with a chimney for renewing the air which does not allow the admission  
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It is needless to state that the dimensions and the arrangements will be the same  
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 20 more in detail under such form.

In this form it is shown in longitudinal section on the drawing accompanying the Provisional Specification.

The old bung or plug is replaced by a conical screw V, which fits into the bung hole. The screw V has a small tap on its upper end, and it is surmounted by a  
 25 tube T of tinned iron or other suitable material. This tube contains hygroscopic and antiseptic zig-zags, which are represented in this case by simple threads of asbestos and of other suitable material, soaked in a liquid which does not easily evaporate, such as glycerine, chloride of calcium, or other suitable substance, in order to maintain, so to speak, permanently the hygroscopic condition of the  
 30 zig-zags and walls of the tube, and an antiseptic, such as hydrofluoric acid or some other fluoride or other antiseptic, is mixed with this glycerine in order to realise the results hereinbefore mentioned.

The threads of asbestos, *etcetera*, may be also replaced by broken pumice-stone, *etcetera*.

35 The tap R of the plug remains ordinarily closed, in order that the carbonic acid shall not escape, and that the evaporation of the beer cannot take place in the plug and cause condensation in the latter, a condensation which would otherwise be collected in the bottom *r* of the head of the screw V. This tap is opened when it is desired to draw the beer, and then the air traversing the plug is sterilised com-  
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It would be superfluous to detail the form of sterilisation apparatus or device necessary for each application, after what has been described hereinbefore, seeing  
 45 that the arrangement alone would change with the modifications, all depending on the same principle.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

50 1. An improved method and means for permanently preserving food and other substances which it is impossible to keep without contact with the air, by depriving the air which must come in contact with such food or other substances of any microbes and bacteria which it may contain, by passing it through a steriliser having hygroscopic surfaces, substantially as hereinbefore described and for the  
 55 purpose set forth.

2. The extermination of microbes and bacteria caught on the hygroscopic

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surfaces by mixing an antiseptic, such as hydro-fluoric acid, fluorides or the like with the liquid used for moistening these hygroscopic surfaces or zig-zags, substantially as described and shown.

3. An improved steriliser adapted for use as a bung for casks for beer and other liquids, consisting of a conical screw V with a tap R surmounted by a tube of 5 tinned iron containing antiseptic hygroscopic surfaces or zig-zags in the form of threads of asbestos, broken pumice stone, substantially as hereinbefore described and shown on the drawing accompanying the Provisional Specification.

Dated this 30th day of April 1894.

WM. P. THOMPSON & Co.,  
Of 6, Lord Street, Liverpool, Agents for the Applicant.

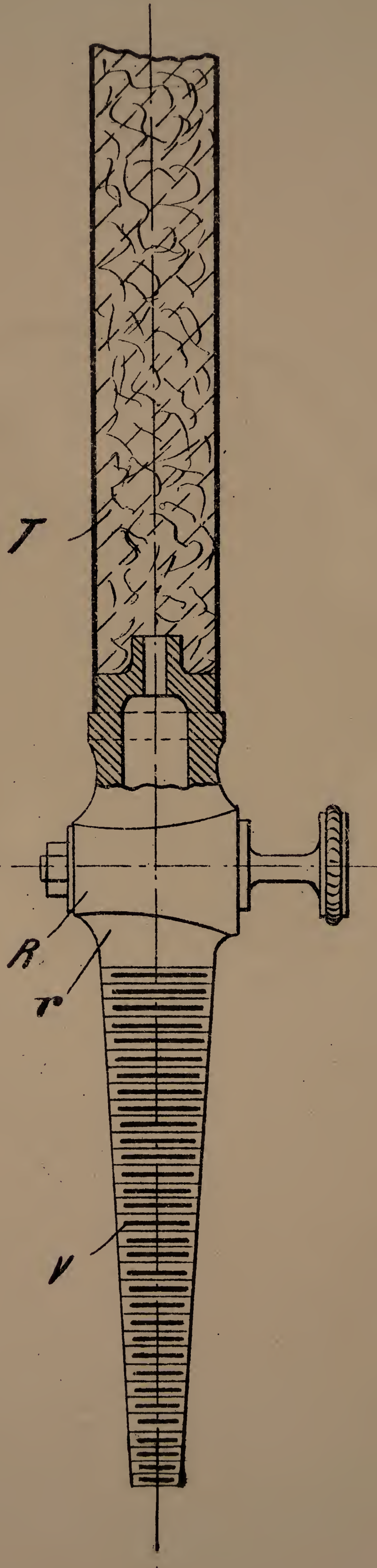
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London: Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1894







[This Drawing is a full-size reproduction of the Original.]

